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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/661,196

09/12/2003

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037-0001

7226

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7590

06/16/2008

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EXAMINER

DEAN, RAYMOND S

ART UNIT

PAPER NUMBER

2618

MAIL DATE

DELIVERY MODE

06/16/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/661,196	Applicant(s) MOSTAFA ET AL.	
	Examiner RAYMOND S. DEAN	Art Unit 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 September 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>0308</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed March 14, 2008 have been fully considered but they are not persuasive.

Examiner respectfully disagrees with Applicants' assertions on Page 8 2nd Paragraph "There is nothing in this portion (or any other) that teaches compensating ..." and 3rd Paragraph "Further, even assuming arguendo that there is TA ... nowhere does Rimhagen teach compensating for a fixed ...". Rimhagen teaches a centralized radio processing portion or host, which is the hub (See Col. 6 lines 33 – 36). The typical processing conducted by a base station, such as the timing advance (TA) processing, is conducted by the hub or host. Rimhagen teaches the limitation in question (See Cols. 6 lines 26 – 44, lines 62 – 67, 7 lines 1 – 14). The TA issues are eliminated, however, there is still an actual TA because the time overlap between, for example, two signals transmitted from two users in two different time slots still needs to be eliminated. The TA, which is the time period corresponding to a variable delay, compensates for the delay between the radio heads and the hub. The delay may be negligible but nevertheless it is still an actual delay and is thus accounted for via the TA.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 – 12, 14 – 15, 18 – 25, and 27 – 30 are rejected under 35 U.S.C. 102(e) as being unpatentable over Rimhagen et al. (US 6,594,245)

Regarding Claim 1, Rimhagen teaches a method for use in a cellular communications system having a centralized radio processing portion (hotel) in communication with a plurality of remote air interface radio portions (RH) over a transport medium (Figures 1, 4, Column 6 lines 32 – 44, lines 62 – 67, WNC or Hub is the centralized radio processing portion, CSs or radio heads are the remote air interface portions), the method comprising: in the centralized radio processing portion, compensating for a fixed delay associated with the transport medium coupling the centralized radio processing portion and one of the remote air interface radio portions in evaluating a time period corresponding to a variable delay between transmission by a mobile station and receipt of the transmission by the centralized radio processing portion (Cols. 6 lines 26 – 44, lines 62 – 67, 7 lines 1 – 14, See also Response To Arguments), the mobile station communicating with the one of air interface radio portions, the transmission being received by the centralized radio processing portion from the one of the remote air interface radio portions (Figures 1, 4, Column 6 lines 32 – 44, lines 62 – 67).

Regarding Claim 15, Rimhagen teaches a cellular communication system comprising: a host processing part coupled to receive a communication over a transport medium from a remote air interface part (Figures 1, 4, Column 6 lines 32 – 44, lines 62 – 67, WNC or Hub is the centralized radio processing portion, CSs or radio heads are the remote air interface portions), the host processing part configured to determine a time interval between transmission by a mobile station in communication with the remote air interface part and receipt of the transmission at the host processing part, the host processing part configured to compensate for a fixed delay associated with the transport medium coupling the host processing part and the remote radio interface part in evaluating the time interval (Cols. 6 lines 26 – 44, lines 62 – 67, 7 lines 1 – 14, See also Response To Arguments).

Regarding Claim 27, Rimhagen teaches a cellular communication system comprising: a host processing part coupled to receive a communication from a mobile station via a transport medium (Figures 1, 4, Column 6 lines 32 – 44, lines 62 – 67); and means, in the host processing part, for evaluating a timing period associated with transmission of the communication from the mobile station to the host processing part and for compensating when performing the evaluating, for a fixed delay associated with the transport medium coupling the host processing part and the remote radio interface part that receives the communication from the mobile station and forwards the communication over the transport medium to the host processing part (Cols. 6 lines 26 – 44, lines 62 – 67, 7 lines 1 – 14, See also Response To Arguments).

Regarding Claim 2, Rimhagen teaches all of the claimed limitations recited in Claim 1. Rimhagen further teaches wherein the evaluating is determining a time out period associated with a call from the mobile station (Column 3 line 27, typical GSM systems utilize time out periods).

Regarding Claim 3, Rimhagen teaches all of the claimed limitations recited in Claim 1. Rimhagen further teaches wherein the evaluating is for synchronizing calls by adjusting a transmission timing of the mobile station according to the evaluation of the time period corresponding to the variable delay (Column 6 lines 18 – 20).

Regarding Claim 4, Rimhagen teaches all of the claimed limitations recited in Claim 1. Halonen further teaches subtracting out the fixed delay in a calculation of the time period corresponding to the variable delay (Col. 4 lines 54 – 57).

Regarding Claim 5, Rimhagen teaches all of the claimed limitations recited in Claim 1. Rimhagen further teaches increasing a time period corresponding to receipt of the transmission at the one of the remote air interface radio portions, by a second time period corresponding to a fixed delay (Column 6 lines 18 – 20, the TA increases the time period, said increase comprises a plurality of time periods).

Regarding Claim 6, Rimhagen teaches all of the claimed limitations recited in Claim 5. Rimhagen further teaches wherein the first time out period is a time out period within which the centralized radio processing portion expects a communication to be received by the one of the remote air interface radio portions (Column 3 line 27, typical GSM systems utilize time out periods).

Regarding Claim 7, Rimhagen teaches all of the claimed limitations recited in Claim 6. Rimhagen further teaches wherein a call from the mobile station is dropped if the receipt of the communication from the mobile station is received after a third time period equal to the first plus the second time periods (Column 6 lines 18 – 20, the TA function can adjust to a plurality of time periods thus there will be a plurality of corresponding time out periods in which a call is dropped).

Regarding Claims 8, 29, Rimhagen teaches all of the claimed limitations recited in Claims 5, 27. Rimhagen further teaches wherein the first time period is an adjustable timing advance time period used to avoid overlap in time slots with another mobile station (Column 6 lines 18 – 20).

Regarding Claim 9, Rimhagen teaches all of the claimed limitations recited in Claim 1. Rimhagen further teaches the mobile station is provided with a timing adjust value independent of a fixed delay (Column 6 lines 18 – 20).

Regarding Claim 10, Rimhagen teaches all of the claimed limitations recited in Claim 1. Rodman further teaches utilizing a calibrated value for the fixed delay (Col. 5 lines 10 – 13, the delay due to the temperature is the calibrated value).

Regarding Claims 11, 24, Rimhagen teaches all of the claimed limitations recited in Claims 1, 15. Rimhagen further teaches wherein a plurality of remote air interface radio portions are coupled via the transport medium to the centralized radio processing portion (Figures 1, 4), and wherein the centralized radio processing portion accounts for a different fixed delay for each of the remote air interface radio portions (Figures 1, 4,

each of the radio heads are at different distances from the WNC or Hub thus the propagation delay will be different).

Regarding Claims 12, 25, Rimhagen teaches all of the claimed limitations recited in Claims 1, 15. Rimhagen further teaches wherein the transport medium is optical fiber (Column 3 lines 45 – 47).

Regarding Claim 14, Rimhagen teaches all of the claimed limitations recited in Claim 1. Rimhagen further teaches supplying a base station controller (BSC) with the variable delay (Figure 1, Column 3 lines 40 – 42, WNC is acting as the BSC).

Regarding Claim 18, Rimhagen teaches all of the claimed limitations recited in Claim 15. Rimhagen further teaches wherein the time interval is a sum of a first time period corresponding to receipt of the transmission at the remote air interface part and a fixed delay (Column 6 lines 18 – 20, the TA increases the time period, said increase comprises a plurality of time periods).

Regarding Claim 19, Rimhagen teaches all of the claimed limitations recited in Claim 15. Rimhagen further teaches wherein the evaluating determines if the transmission from the mobile station was received within an allowable timeout period (Column 3 line 27, typical GSM systems utilize time out periods).

Regarding Claim 20, Rimhagen teaches all of the claimed limitations recited in Claim 19. Rimhagen further teaches wherein the timeout period is evaluated by adding a fixed delay to the allowable time out period and comparing to the time interval (Column 6 lines 18 – 20, the TA function can adjust to a plurality of time periods thus there will be a plurality of corresponding time out periods in which a call is dropped).

Regarding Claim 21, Rimhagen teaches all of the claimed limitations recited in Claim 19. Rodman teaches subtracting the fixed delay from the time interval (Col. 4 lines 65 – 68, 5 lines 1 – 9, compensating for the delay comprises subtracting the delay). Rimhagen further teaches comparing to the allowable time out period (Column 3 line 27, typical GSM systems utilize time out periods).

Regarding Claim 22, Rimhagen teaches all of the claimed limitations recited in Claim 15. Rimhagen further teaches wherein the time interval corresponds to a timing advance time period summed with a delay, the timing advance period being used to avoid overlap in time slots with another mobile station (Column 6 lines 18 – 20).

Regarding Claim 23, Rimhagen teaches all of the claimed limitations recited in Claim 15. Rimhagen further teaches wherein the fixed delay is a measured value (Cols. 6 lines 26 – 44, lines 62 – 67, 7 lines 1 – 14, See also Response To Arguments).

Regarding Claim 28, Rimhagen teaches all of the claimed limitations recited in Claim 27. Rimhagen further teaches wherein the timing period is a time out period associated with dropping a call if the communication is not received within the time out period (Column 3 line 27, typical GSM systems utilize time out periods).

Regarding Claim 30, Rimhagen teaches all of the claimed limitations recited in Claim 15. Rimhagen further teaches wherein the host processing part is further coupled to receive respective communications over the transport medium from a plurality of other remote air interface parts, each of the other remote air interface parts having respective fixed delays over the transport medium different from the fixed delay associated with the remote air interface part (Cols. 6 lines 26 – 44, lines 62 – 67, 7 lines

1 – 14, the fixed delays between the radio heads and the hub because the distances between the hub and radio heads are different).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 13, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rimhagen et al. (US 6,594,245) in view of Burg et al. (US 6,427,075).

Regarding Claims 13, 26, Rimhagen teaches all of the claimed limitations recited in Claims 1, 15. Rimhagen does not teach wherein the transport medium is one of free state optical and microwave.

Burg teaches wherein the transport medium is microwave (Column 1 lines 21 – 24).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the microwave link as an alternative means of providing communication between the WNC and the radio heads.

6. Claims 16 – 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rimhagen et al. (US 6,594,245) in view of Repice et al. (US 2003/0061422).

Regarding Claim 16, Rimhagen teaches all of the claimed limitations recited in Claim 15. Rimhagen does not teach a counter coupled to account for the fixed delay.

Repice teaches a counter coupled to account for the fixed delay (Section 0021 lines 18 – 21).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Rimhagen with the counter of Repice as an alternative means of measuring propagation delay.

Regarding Claim 17, Rimhagen teaches all of the claimed limitations recited in Claim 15. Rimhagen does not teach wherein the counter is implemented in software.

Repice teaches wherein the counter is implemented in software (Section 0021 lines 18 – 21, the control interface is controlled by software).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Rimhagen with the counter of Repice as an alternative means of measuring propagation delay.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure." Distributed Antenna Systems Plus Software Radio: Range Extension and Other Benefits"

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RAYMOND S. DEAN whose telephone number is (571)272-7877. The examiner can normally be reached on Monday-Friday 6:00-2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward F. Urban can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Raymond S Dean/
Primary Examiner, Art Unit 2618

Raymond S. Dean
May 27, 2008

/Edward Urban/
Supervisory Patent Examiner, Art Unit 2618